Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

**Course Code: CH361**

**Course Name: ENERGY ENGINEERING**

Max. Marks: 100 Duration: 3 Hours

## PART A

***Answer any two full questions, each carries 15 marks*** Marks

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|---|---|---|---|
| 1 | a) | Write a short note on energy crisis and its causes. | (7) |
| | b) | Explain with a neat sketch the working of nuclear power plants, | (8) |
| 2 | a) | Describe briefly the non renewable sources of energy. | (7) |
| | b) | Describe the classification of turbines used in hydel power plants. | (8) |
| 3 | a) | Explain in detail, the energy situation in developing countries, with special reference to India. | (8) |
| | b) | Discuss on hydroelectric power potential of India. | (7) |

## PART B

***Answer any two full questions, each carries 15 marks***

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|---|---|---|---|
| 4 | a) | Write a note on biomass gasification. | (5) |
| | b) | Explain on the solar energy refrigeration systems. | (5) |
| | c) | Write a note on wind power in India. | (5) |
| 5 | a) | Draw a schematic diagram of a solar PV system and explain the operation. | (8) |
| | b) | Draw a schematic diagram of an ocean thermal energy conversion plant and explain the operation. | (7) |
| 6 | a) | Explain tidal energy conversion. | (5) |
| | b) | Describe wind electric power generation. | (7) |
| | c) | Give some geothermal energy sources in India. | (3) |

## PART C

***Answer any two full questions, each carries 20 marks***

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|---|---|---|---|
| 7 | a) | Describe the principle and operation of fuel cell. | (6) |
| | b) | What are the advantages of fuel cell power sources. | (4) |
| | c) | Explain energy conservation in:<br>i) Heat exchangers ii) Furnace. | (10) |
| 8 | a) | Explain in detail about Alkaline Fuel cell and molten carbonate fuel cell with neat diagram. | (10) |
| | b) | Discuss on energy conservation measures used in a petroleum industry. | (10) |
| 9 | a) | Describe open cycle magneto hydro dynamic power generation with a suitable sketch. | (10) |
| | b) | Explain in detail about cogeneration and its advantages. | (10) |

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